Chapter 16

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LINUX 16.1 Understanding the Linux Kernel

- Linux kernel is the heart of the linux
- Linux kernel need to address hardware devices
- process are running on your computer
- we need drivers to address these things and these drivers are called modules

- There are different way to address these drivers
- initranfs is the initial ram drive and it will be loaded once linux is booting and from the initramfs there is a lot of drivers loading that have to be compiled into the initramfs upon installation of the system

- systemd-udevd is to recognize if you plug in a USB thumb driver for example
- systemd-udevd is waking up works together with the linux kernel and make sure that the apropriate driver is loaded.

- modprobe command is how you can manually load a driver which is not very common
- In order to access the kernel you would use a shell by typing a command on your shell you need to call a specific system call

LINUX 16.2 Working with Kernel Modules

- Linux drivers are implemented as kernel modules
- Most kernel modules are loaded automatically through initramfs or systemd-udevd
- it is helper process responsible for loading kernel drivers
- use modprobe to manually laod kernel module
- use lsmod to list currently loaded kernel modules

PRACTICAL

- lsmod
- lsmod | grep vfat
- modprobe vfat
- lsmod | grep vfat
- modprobe -r vfat **module will be unloaded from the memory**

LINUX 16.3 Using modprobe

- Use modprobe to load a kernel module and all its dependencies
- Use modprobe -r to unload the module
- modeinfo can show module parameters
- To load, specify kernel module parameters, edit /etc/modprobe.conf or the files in /etc/modprobe.d

PRACTICAL

- lsmod
- modinfo e1000
- cd /etc/modprobe.d/
- ls
- vim kvm.conf
- Option kvm_intel nested = 1
- it is a interesting option which help us to instal a virtual machine inside a virtual machine
- so uncommented
- modeprobe kvm

LINUX 16.4 Using /proc to Tune Kernel Behavior

- /proc is the file system that provides access to kernel information
- PID directories (contain info about the running process)
- Status files (contains info what exactly is happening on your system)
- Tunables in /proc/sys (allow you to change the kernel behaviour in real time)

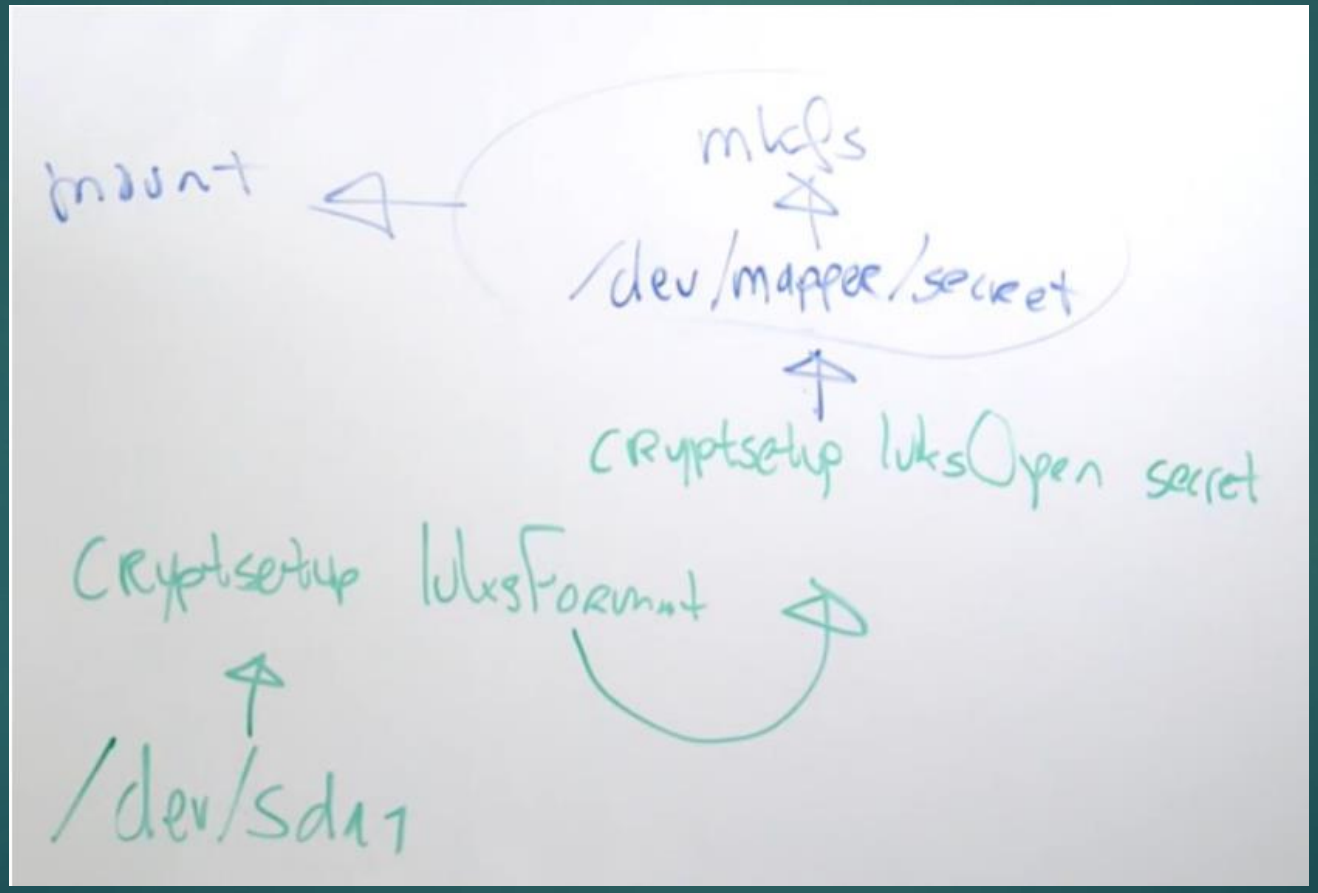
- use echo to write a value to any file in /proc/sys to change kernel performance parameters
- write the parameters to /etc/sysctl.conf to make them persistent
- USe sysctl -a to show a lost of all current setting

PRACTICAL

- mount | grep proc
- cd /proc

Linux 16.5 Updating the kernel

- Linux kernels are not technically updated, a new kernel is installed beside the old kernel
- This allows administrators to boot the old kernel in case anything goes wrong.
- Use either yum update kernel or yum install kernel to update the kernel both are exactly same.
- And in next reboot and in the grip boot loader menu we will see that new kernel is available.


mount
mkfs
/dev/mapper/secret
cryptsetup luksOpen secret
cryptsetup luksFormat
/dev/sda1

Thank you